

CCS MANAGEMENT REQUIREMENTS

1/15/97

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
<u>INTERFACE REQUIREMENTS (EXTERNAL)</u>			
CCS.5-0010	CCS Management shall send Project Reference Data updates to the PDB Facility.	CCS-0070	
CCS.5-0020	CCS Management shall receive Project Reference Data Releases from the PDB Facility.	CCS-0070	
CCS.5-0030	CCS Management shall distribute CCS Software Releases to Test Facilities.	CCS-0130	
<u>INTERFACE REQUIREMENTS (INTERNAL)</u>			
CCS.5-0040	CCS Management shall accept reconfiguration requests from CMD.	CCS-0440	
CCS.5-0050	CCS Management shall return reconfiguration responses to CMD for each reconfiguration received.	CCS-0440	
CCS.5-0060	CCS Management shall receive System Event information from SYM.	CCS-0710	
CCS.5-0070	CCS Management shall send CCM event information to SYM.	CCS-0710	
CCS.5-0080	CCS Management shall accept user interactive requests for system configuration information from GUI.	CCS-0140	
CCS.5-0090	CCS Management shall return user interactive responses with system configuration information to GUI.	CCS-0140	
CCS.5-0100	CCS Management shall receive CCM interactive requests for system configuration information from CCS Users.	CCS-0140	
CCS.5-0110	CCS Management shall send CCM interactive responses with system configuration information to CCS Users.	CCS-0140	
CCS.5-0120	CCS Management shall issue information requests to DMG for specified data.	CCS-0190	
CCS.5-0130	CCS Management shall receive requested data from DMG or an indication of why the requested data was not be provided.	CCS-0190	
CCS.5-0140	CCS Management shall send Analysis Products to DMG for storage.	CCS-0190	
<u>FUNCTIONAL</u>			
CCS.5-0150	CCS Management shall maintain operational system configuration and	CCS-0190, CCS-	

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	process information (e.g., operational system configuration, string definitions, and status).	0440	
CCS.5-0160	CCS Management shall maintain all requirements, and system design and implementation information (e.g., system design data, source code, testing information, and documentation).	CCS-0190	
CCS.5-0165	CCS Management shall provide automated tools to assist users with creation and maintenance of requirements, and system design and implementation information.		
CCS.5-0170	CCS Management shall provide the capability for authorized users to bring the CCS system up to an operational state of readiness.	CCS-0150	
CCS.5-0180	CCS Management shall provide the capability for authorized users to bring the CCS system down to an idle state.	CCS-0150	
CCS.5-0190	CCS Management shall be able to initialize and configure hardware components, software processes, and network connections to constitute a functioning CCS operational string.	CCS-0440	PRS CMAS208, 209a,c, 210a,b, 211a, 302b
CCS.5-0200	CCS Management shall be able to properly connect the appropriate external interfaces to a CCS operational string.	CCS-0440	PRS CMAS202
CCS.5-0210	CCS Management shall be able to maintain multiple versions of both operational and development databases to support both flight operations and Servicing Missions.	CCS-0200	
CCS.5-0220	CCS Management shall be able to accommodate sufficient workstations to support servicing missions.	CCS-1190	PORTS D.2.1.1
CCS.5-0230	CCS Management shall accept operator commands to initialize processors, perform configuration changes, and allocate specific resources.	CCS-0150	PRS CMAS209d, 210d, 302b, PER104b
CCS.5-0240	CCS Management shall provide the capability for authorized users to establish rules to correct failures of CCS hardware components, software processes and network elements.	CCS-0730	PRS CMAS209e,f,g, 210e
CCS.5-0250	CCS Management shall monitor and record the status of CCS components.	CCS-0710	
CCS.5-0260	CCS Management shall automatically detect user specified deviations of system behavior from expected CCS operations.	CCS-0730	
CCS.5-0270	CCS Management shall determine what action to take to correct failures of	CCS-0730	

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	CCS hardware components, software processes and network elements.		
CCS.5-0280	CCS Management shall provide the capability for authorized users to inhibit the CCS system from automatically taking specific actions when an unexpected deviation in CCS system behavior is detected.	CCS-0740	
CCS.5-0290	CCS Management shall automatically notify a System Administrator of any abnormal condition with the notification priority commensurate with the seriousness of the condition.	CCS-0720	
CCS.5-0300	CCS Management shall be able to notify a specified user that they are needed to support system operations (e.g., via pager).	CCS-0520, CCS-0550	
CCS.5-0305	CCS Management shall be able to produce reports that present details of the operational status and history of CCS subsystems and equipment.		
CCS.5-0310	CCS Management shall maintain the software versions for deployed(able) configurations including the spacecraft operations CCS and Test Facility CCS installations.	CCS-0680	
CCS.5-0320	CCS Management shall be capable of distributing both COTS and applications software releases and versions to all affected CCS installations.	CCS-0680	PRS PER104h
CCS.5-0330	CCS Management shall provide the capability for authorized users to generate distributions of the system for specified facilities (e.g., test facilities).	CCS-0680	
CCS.5-0340	CCS shall be capable of distributing new versions of the Project Reference Data releases and versions to all affected CCS installations.	CCS-0690	
CCS.5-0350	CCS Management shall receive time information from a 'standard time source' in accordance with NMEA 0182.	CCS-0100	
CCS.5-0360	CCS Management shall maintain the 'standard time' that is provided to all operational components of the CCS.	CCS-0100	
CCS.5-0370	CCS Management shall provide the capability for authorized users to submit change requests against the operational system configuration.	CCS-0620	
CCS.5-0380.	CCS Management shall provide the capability for authorized users to submit change requests against the a test facility configuration.	CCS-0620	
CCS.5-0390	CCS Management shall provide the capability for authorized users to view and update the status of change requests.	CCS-0630	

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CCS.5-0400	CCS Management shall provide the capability for authorized users to assess the impact of change requests on system design and implementation information.	CCS-0640	
CCS.5-0410	CCS Management shall provide the capability for authorized users to assign resources to implement each change request.	CCS-0650	
CCS.5-0420	CCS Management shall provide the capability for authorized users to schedule the implementation of a change request.		
CCS.5-0424	CCS Management shall provide automated functions that assist in processing and tracking Change Requests.		
CCS.5-0428	CCS Management shall provide automated functions for tracking equipment inventory and Purchase Requests.		
CCS.5-0430	CCS Management shall provide the capability for authorized users to make changes to system design and implementation information as defined in a specific change request.	CCS-0660	
CCS.5-0440	CCS Management shall provide the capability for authorized users to test and verify changes to system design and implementation information resulting from a specific change request.	CCS-0670	
CCS.5-0450	CCS Management shall maintain on-line documentation for system functions and capabilities.	CCS-0750	
CCS.5-0460	CCS Management shall provide the capability for users to access on-line system documentation.	CCS-0770	
CCS.5-0470	CCS Management shall notify the user when requested on-line system documentation cannot be provided.	CCS-0780	
CCS.5-0480	CCS Management shall provide the capability for authorized users to update on-line system documentation.	CCS-0760	
CCS.5-0490	CCS Management shall capable of distributing new versions of on-line system documentation to affected CCS installations.	CCS-0760	
CCS.5-0500	CCS Management shall provide the capability for users to invoke a standard set of office automation functions (e.g., e-mail, word processing,	CCS-0700	

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	spreadsheets).		
CCS.5-0510	CCS Management shall provide the capability for a security administrator add new CCS users to the operational system.	CCS-0860	
CCS.5-0520	CCS Management shall provide the capability for a security administrator modify existing CCS user profiles within the operational system.	CCS-0860	
CCS.5-0530	CCS Management shall provide the capability for a security administrator delete existing CCS user profiles from the operational system.	CCS-0860	
CCS.5-0540	CCS Management shall provide the capability for a security administrator to request the collection of security audit data from CCS components.	CCS-0870	
CCS.5-0550	CCS Management shall provide the capability for a security administrator to generate audit reports from the security audit data.	CCS-0870	
CCS.5-0560	CCS Management shall be able to store security audit data for the life of the mission.	CCS-0870	
CCS.5-0565	CCS Management shall support collaboration sessions among valid CCS users.		
<u>PERFORMANCE</u>			
CCS.5-0570	CCS Management shall be able to establish the CCS configuration and constitute a functioning operational string within 5 minutes assuming the processors are powered on and running.	CCS-0150	PRS PER104c
CCS.5-0580	CCS Management shall be able to execute at least 4 CCL system infrastructure statements per second.	CCS-0730	PRS PER107
CCS.5-0590	CCS Management shall notify the appropriate user within 5 (TBD) seconds, when a deviation in expected CCS system behavior is detected.	CCS-1080	
<u>MANAGE STRING (5.1)</u>			
<u>System Initialization And String Configuration</u>			
CCS.5.1-0010	CCS Management shall be able to allocate system elements to create three separate, independent, dedicated CCS strings to support (1) spacecraft operations, (2) simulations, and (3) testing or backup.	CCS.5-0190	PORTS D.2.2.1, PRS CMAS 209b
CCS.5.1-0020	CCS Management shall be able to track and report the logical configuration of hardware components and software processes that constitute each separate, independent string.	CCS.5-0190	

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CCS.5.1-0030	CCS Management shall be able to execute CCL procedures that perform initialization and configuration operations.	CCS.5-0170, CCS.5-0180, CCS.5-0190	
CCS.5.1-0040	CCS Management shall permit an operator to establish configuration definitions in the form of CCL commands and procedures.	CCS.5-0190	PRS CMAS201
CCS.5.1-0050	CCS Management shall be able to enable or disable access to CCS servers for specific user groups.	CCS.5-0230	
Status Monitoring			
CCS.5.1-0060	CCS Management shall automatically monitor and record the operational status of each separate, independent string.	CCS.5-0250	PRS CMAS205a, 303
CCS.5.1-0070	CCS Management shall automatically monitor and record the availability status of each system resource.	CCS.5-0250	PRS CMAS205a, 303
CCS.5.1-0080	CCS Management shall automatically monitor and record the operational status of CCS hardware components, software processes and network elements.	CCS.5-0250	PRS CMAS204a, 205a, 303
CCS.5.1-0090	CCS Management shall be able to automatically perform operational readiness tests for displays and printers.	CCS.5-0260	PRS CMAS 204c,d
CCS.5.1-0100	CCS Management shall automatically detect and record failures of CCS hardware components, software processes and network elements.	CCS.5-0260	
CCS.5.1-0110	CCS Management shall automatically detect and record network connectivity failures between CCS and external interfaces.	CCS.5-0260	PRS CMAS204a
CCS.5.1-0120	CCS Management shall automatically detect and record internal network interface failures between CCS components.	CCS.5-0260	PRS CMAS304
CCS.5.1-0130	The CCS Management shall monitor and record utilization levels of CCS processing resources.	CCS.5-0250	
CCS.5.1-0140	The CCS Management shall detect and record utilization levels of CCS processing resources that exceed pre-determined thresholds.	CCS.5-0260	
CCS.5.1-0150	The CCS Management shall be able to display configuration, status, and statistical information regarding hardware, software, networks, internal and external interfaces, and system events.	CCS.5-0250	PRS CMAS205a-c, 206, 207a,b
Anomaly Notification			

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CCS.5.1-0160	CCS Management shall notify a System Administrator of any failure of a hardware component, software process, or network element.	CCS.5-0290	
CCS.5.1-0170	CCS Management shall notify a System Administrator of any processor overload condition.	CCS.5-0290	
CCS.5.1-0180	CCS Management shall notify a System Administrator, with urgent priority, of any failure of a hardware component, software process, or network element that can not be mitigated or corrected in accordance with specific established rules.	CCS.5-0300	
CCS.5.1-0190	CCS Management shall notify a System Administrator, with urgent priority, of any processor overload condition that can not be mitigated or corrected in accordance with specific established rules.	CCS.5-0300	
Anomaly Recovery			
CCS.5.1-0200	CCS Management shall be capable of removing a suspected device from operational status and replacing it with another functioning device.	CCS.5-0270	PRS CMAS204e
CCS.5.1-0210	CCS Management shall be able to exercise an off-line device with diagnostics to determine its ability to function properly.	CCS.5-0270	PRS CMAS204e
CCS.5.1-0220	The CCS Management shall adjust system processing loads, in accordance with specific established rules when the utilization level of a CCS processing resource exceeds the pre-determined threshold.	CCS.5-0270	
CCS.5.1-0230	CCS Management shall regulate CCS LAN traffic so that transmission delays in engineering data flowing from the FEP to DMG do not exceed 1.0 second.	CCS.5-0270	PRS PER102b
CCS.5.1-0240	CCS Management shall regulate CCS LAN traffic so that transmission delays in command packets flowing from CMD to the FEP do not exceed 0.5 seconds.	CCS.5-0270	PRS PER102b
CCS.5.1-0250	CCS Management shall, upon indication of a hardware system failure, perform a full failover within 15 minutes.	CCS.5-0270	PRS CMAS209e,f,g, 210e
CCS.5.1-0260	CCS Management shall provide system diagnostics that are capable of detecting non-intermittent equipment faults.	CCS.5-0270	PRS CMAS204
CCS.5.1-0270	CCS Management shall provide system diagnostics that are capable of isolating non-intermittent equipment faults to a set of no more than three LRUs.	CCS.5-0270	PRS CMAS204

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<u>Commanding</u>			
CCS.5.1-0280	CCS Management shall execute system infrastructure directives generated as corrective actions in response to detected anomalies.	CCS.5-0270	
CCS.5.1-0290	CCS Management shall accept and execute system infrastructure directives received from the System Administrator through a dedicated user interface.	CCS.5-0230	
<u>COORDINATE COLLABORATION (5.2)</u>			
CCS.5.2-0010	Coordinate Collaboration shall accept a request from an authorized user to start a collaboration session with a specified set of valid users.	CCS.5-0565	
CCS.5.2-0020	Coordinate Collaboration shall accept requests to notify a specific user to join a collaboration session (e.g., via e-mail), when that user is logged-on to the system.	CCS.5-0565	
CCS.5.2-0030	Coordinate Collaboration shall be able to notify a specific user to join a collaboration session (e.g., via pager), when that user is not currently logged-into the system.	CCS.5-0565	
CCS.5.2-0040	Coordinate Collaboration shall return status to the requesting user indicating when each specified user has been notified to join a collaboration session.	CCS.5-0565	
CCS.5.2-0050	Coordinate Collaboration shall provide the capability for users to interact via a 'white-boarding' mechanism during the collaboration session.	CCS.5-0565	
CCS.5.2-0060	Coordinate Collaboration shall provide the capability for the members of a collaboration session to communicate via audio/visual means, as supported by the user workstation.	CCS.5-0565	
CCS.5.2-0070	Coordinate Collaboration shall support multiple, non-interfering collaboration sessions concurrently.	CCS.5-0565	
CCS.5.2-0080	Coordinate Collaboration shall accept a request from a user to terminate their involvement in a collaboration session.	CCS.5-0565	
CCS.5.2-0090	Coordinate Collaboration shall conclude a collaboration session when the last user requests to terminate their involvement in that session.	CCS.5-0565	
<u>REPORT CCS (5.3)</u>			
CCS.5.3-0010	Report CCS shall be able to produce reports showing the availability of the system and principal subsystems.	CCS.5-0305	
CCS.5.3-0020	Report CCS shall be able to produce reports showing system performance	CCS.5-0305	

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	levels as a function of time.		
CCS.5.3-0030	Report CCS shall be able to produce reports showing utilization levels of specific components at specific times or averaged over specified intervals.	CCS.5-0305	
CCS.5.3-0040	Report CCS shall be able to produce reports of the CCS configuration at a specified time.	CCS.5-0305	
CCS.5.3-0050	Report CCS shall be able to produce reports of systems and equipment failures.	CCS.5-0305	
CCS.5.3-0060	Report CCS shall be able to produce reports of corrective actions taken over selected periods of time.	CCS.5-0305	
<u>MAINTENANCE AND UPGRADE (5.4)</u>			
CCS.5.4-0010	Maintenance and Upgrade shall provide software code development productivity tools.	CCS.5-0430	
CCS.5.4-0020	Maintenance and Upgrade shall provide automated tools for creation, modification, and retrieval of system and software design information.	CCS.5-0165, CCS.5-0430	
CCS.5.4-0030	Maintenance and Upgrade shall support test management functions including test definition, test coverage analysis, and maintenance of test results.	CCS.5-0440	
CCS.5.4-0040	Maintenance and Upgrade shall provide automated tools to perform test functions for software, network, and system components.	CCS.5-0440	
CCS.5.4-0050	Maintenance and Upgrade shall be able to assemble releases and updates of CCS software and data components for delivery within CCS and to external facilities.	CCS.5-0310	
CCS.5.4-0060	CCS Management shall maintain the software versions for deployed(able) configurations including the spacecraft operations CCS and Test Facility CCS installations.	CCS.5-0310	
CCS.5.4-0070	CCS Management shall be capable of distributing both COTS and applications software releases and versions to all affected CCS installations.	CCS.5-0320	
CCS.5.4-0080	CCS Management shall provide the capability for authorized users to	CCS.5-0330	

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	generate distributions of the system for specified facilities (e.g., test facilities).		
CCS.5.4-0090	CCS shall be capable of distributing new versions of the Project Reference Data releases and versions to all affected CCS installations.	CCS.5-0340	
CCS.5.4-0100	Maintenance and Upgrade shall provide the capability for authorized users to submit change requests against the operational system configuration.,	CCS.5-0370	
CCS.5.4-0110	Maintenance and Upgrade shall provide the capability for authorized users to submit change requests against the a test facility configuration.	CCS.5-0380	
CCS.5.4-0120	Maintenance and Upgrade shall provide the capability for authorized users to view and update the status of change requests.	CCS.5-0390	
CCS.5.4-0130	Maintenance and Upgrade shall provide the capability for authorized users to assess the impact of change requests on system design and implementation information.	CCS.5-0400	
CCS.5.4-0140	Maintenance and Upgrade shall provide the capability for authorized users to assign resources to implement each change request.	CCS.5-0410	
CCS.5.4-0150	Maintenance and Upgrade shall provide the capability for authorized users to schedule the implementation of a change request.	CCS.5-0420	
CCS.5.4-0160	Maintenance and Upgrade shall provide automated functions that assist in processing and tracking Change Requests.	CCS.5-0424	
CCS.5.4-0170	Maintenance and Upgrade shall provide automated functions that permit entering and tracking Purchase Requests	CCS.5-0428	
CCS.5.4-0180	Maintenance and Upgrade shall provide automated functions for maintaining inventory of CCS equipment items.	CCS.5-0428	
CCS.5.4-0190	Maintenance and Upgrade shall maintain on-line documentation for system functions and capabilities.	CCS.5-0450	
CCS.5.4-0200	Maintenance and Upgrade shall provide the capability for users to access on-	CCS.5-0460	

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	line system documentation.		
CCS.5.4-0210	Maintenance and Upgrade shall notify the user when requested on-line system documentation cannot be provided.	CCS.5-0470	
CCS.5.4-0220	Maintenance and Upgrade shall provide the capability for authorized users to update on-line system documentation.	CCS.5-0480	
CCS.5.4-0230	Maintenance and Upgrade shall capable of distributing new versions of on-line system documentation to affected CCS installations.	CCS.5-0490	
Lower Case Tools (5.4.1)			
CCS.5.4.1-0010	Lower Case Tools shall provide tools to support software development in the C++, Java, and FORTRAN programming languages.	CCS.5.4-0010	
CCS.5.4.1-0020	Lower Case Tools shall provide tools to support the following software development functions: text editing, compiling, linking, debugging, unit testing, performance analysis, and code quality analysis.	CCS.5.4-0010	
Test Management (5.4.2)			
CCS.5.4.2-0010	Test Management shall permit a user to specify the components associated with a system release including processes, data flows, data stores, threads, user commands, views and displays, reports, and configuration items.	CCS.5.4-0030	
CCS.5.4.2-0020	Test Management shall permit a user to specify test case descriptions including the test case identifier; test name; purpose; a narrative description of the test; associated system requirements; threads; narrative descriptions of test inputs, prerequisites, expected results, and evaluation criteria; and descriptions of any test variations.	CCS.5.4-0030	
CCS.5.4.2-0030	Test Management shall be able to represent test coverage by mapping requirements to test cases.	CCS.5.4-0030	
CCS.5.4.2-0040	Test Management shall permit a user to enter test results in terms of pass-fail outcomes.	CCS.5.4-0030	
CCS.5.4.2-0050	Test Management shall provide a general reporting capability that permits users to generate reports of test coverage, validated requirements, and release	CCS.5.4-0030	

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	information.		
Test Tools (5.4.3)			
CCS.5.4.3-0010	Test Tools shall be able to capture keystrokes entered by users into test script files.	CCS.5.4-0040	
CCS.5.4.3-0020	Test Tools shall permit users to create, modify and delete test script files.	CCS.5.4-0040	
CCS.5.4.3-0030	Test Tools shall be able to playback test script files to perform testing operations automatically.	CCS.5.4-0040	
CCS.5.4.3-0040	Test Tools shall be able to inject faults into the software to simulate error conditions that are difficult to produce.	CCS.5.4-0040	
CCS.5.4.3-0050	Test Tools shall be able to capture, store, filter, and analyze raw network traffic.	CCS.5.4-0040	
CCS.5.4.3-0060	Test Tools shall provide a screen capture utility.	CCS.5.4-0040	
CCS.5.4.3-0070	Test Tools shall provide the capability for on-line test logs that permit testers to interactively record test results during the test execution.	CCS.5.4-0040	
CCS.5.4.3-0080	Test Tools shall provide the capability to search on-line test logs for test results information and to perform analysis of testing trends.	CCS.5.4-0040	
CCS.5.4.3-0090	Test Tools shall be able to produce high volume transaction streams to stress the system for performance and robustness testing.	CCS.5.4-0040	
CCS.5.4.3-0100	Test Tools shall include a Portable Spacecraft Simulator that can generate simulated telemetry, receive commands, and provide limited responses to commands in terms of the telemetry generated.	CCS.5.4-0040	
Portable Spacecraft Simulator			
<i>Environment Requirements</i>			
CCS.5.4.3.1-0010	The CCS-PSS shall be hosted on a standard CCS UNIX-based platform.	CCS.5.4.3-0100	
CCS.5.4.3.1-0020	The CCS-PSS shall be implemented entirely in software.	CCS.5.4.3-0100	
CCS.5.4.3.1-	The user shall be able to operate the CCS-PSS from any remote CCS UNIX	CCS.5.4.3-0100	

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0030	platform on the same network as the UNIX platform that hosts the CCS-PSS system.		
CCS.5.4.3.1-0040	Remote UNIX platforms shall be able to operate CCS-PSS using only standard UNIX software components.	CCS.5.4.3-0100	
CCS.5.4.3.1-0050	The CCS-PSS shall be integrated with the CCS test automation tools (e.g., Mercury's XRunner).	CCS.5.4.3-0100	
<i>Basic CCS-PSS Command Capabilities</i>			
CCS.5.4.3.1-0060	The CCS-PSS shall be able to display command bits to the console in hex and DM01 formats.	CCS.5.4.3-0100	
CCS.5.4.3.1-0070	The CCS-PSS shall be able to receive commands in blocked or serial mode.	CCS.5.4.3-0100	
CCS.5.4.3.1-0080	The CCS-PSS shall be able to display command receipt time in terms of milliseconds.	CCS.5.4.3-0100	
CCS.5.4.3.1-0090	The CCS-PSS shall update appropriate command counters upon command validation and execution.	CCS.5.4.3-0100	
CCS.5.4.3.1-0100	The CCS-PSS shall perform checksums on all DF-224 and NSSC-1 loads.	CCS.5.4.3-0100	
CCS.5.4.3.1-0110	The CCS-PSS shall execute Aft Flight Deck Commands with appropriate command verifier values.	CCS.5.4.3-0100	
CCS.5.4.3.1-0120	The CCS-PSS shall log all incoming commands.	CCS.5.4.3-0100	
CCS.5.4.3.1-01300	Command blocks shall be logged with a time tag that has a resolution of 10 milliseconds or less.	CCS.5.4.3-0100	
CCS.5.4.3.1-0140	The CCS-PSS shall be able to delog all received commands.	CCS.5.4.3-0100	
CCS.5.4.3.1-0150	The CCS-PSS shall produce a command delog file consisting of command bits in hex and in DM01 format, command block time tags, and, optionally, the time difference between blocks.	CCS.5.4.3-0100	
CCS.5.4.3.1-0160	The CCS-PSS shall provide a command delog file comparison capability that identifies differences in command sequences and significant (TBD) time differences between command blocks.	CCS.5.4.3-0100	

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CCS.5.4.3.1-0170	The CCS-PSS shall respond to the execution of commands that perform telemetry related functions such as selection of telemetry formats and start/stop telemetry transmission.	CCS.5.4.3-0100	
<i>Basic CCS-PSS Telemetry Capabilities</i>			
CCS.5.4.3.1-0180	The CCS-PSS shall produce engineering data consisting of minor frames containing dynamic command counters, dynamic major/minor frame counters, scripted mnemonics, and minor frame words initialized to the word number or specified initial values.	CCS.5.4.3-0100	
CCS.5.4.3.1-0190	The CCS-PSS shall store initial values and scripting information in ASCII data files that are read in during CCS-PSS initialization.	CCS.5.4.3-0100	
CCS.5.4.3.1-0200	The CCS-PSS shall be able to read initialization and scripting information consisting of up to 250 telemetry mnemonics, their telemetry locations, initial value, maximum and minimum values, time between changes in multiples of 10 msec, type of ramping function (step, wave, or sawtooth), and step value.	CCS.5.4.3-0100	
CCS.5.4.3.1-0210	The CCS-PSS shall be capable of transmitting engineering data in serial or blocked mode.	CCS.5.4.3-0100	
CCS.5.4.3.1-0220	The CCS-PSS shall be able to display current value for specified telemetry mnemonics in both raw counts and Engineering Units.	CCS.5.4.3-0100	
CCS.5.4.3.1-0230	The CCS-PSS shall be able to transmit pre-recorded engineering data from 8 mm tape or from magnetic disk.	CCS.5.4.3-0100	
CCS.5.4.3.1-0240	The CCS-PSS shall have the capability to dump, in real-time, the contents of selected minor frame(s) to the console.	CCS.5.4.3-0100	
CCS.5.4.3.1-0250	The CCS-PSS shall be able to internally record engineering telemetry to emulate engineering tape recorder or engineering solid state recorder playback.	CCS.5.4.3-0100	
CCS.5.4.3.1-0260	The CCS-PSS shall provide the user the capability to manipulate engineering data patterns by keying in information related to individual 8-bit words.	CCS.5.4.3-0100	
CCS.5.4.3.1-0270	The CCS-PSS shall be able to transmit "canned" real-time science at 4 Kbps or 1.024 Mbps.	CCS.5.4.3-0100	
CCS.5.4.3.1-0280	The CCS-PSS shall be able to generate canned science data consisting of static data with the appropriate packet headers for instrument packets, SHPs,	CCS.5.4.3-0100	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
	UDLs, and status buffer packets.		
CCS.5.4.3.1-0290	The CCS-PSS shall generate canned science data that is PN encoded.	CCS.5.4.3-0100	
CCS.5.4.3.1-0300	The CCS-PSS shall permit the user to optionally select canned science data that is RS encoded with a static segment that matches 14 segments of fill data with no spacecraft time.	CCS.5.4.3-0100	
CCS.5.4.3.1-0310	The CCS-PSS shall be capable of transmitting real-time or playback science data from an 8mm tape.	CCS.5.4.3-0100	
CCS.5.4.3.1-0320	The CCS-PSS shall have the capability to manipulate data patterns in the science data via operator input.	CCS.5.4.3-0100	
CCS.5.4.3.1-0330	The CCS-PSS shall have the capability of transmitting pre-recorded science data stored internally to simulate science tape recorder or science solid state recorder playback.	CCS.5.4.3-0100	
<i>Basic CCS-PSS Onboard Computer Memory Capabilities</i>			
CCS.5.4.3.1-0340	The CCS-PSS shall accept and internally store DF-224, Co-processor, NSSC-I, SI microprocessor, and 486 memory loads.	CCS.5.4.3-0100	
CCS.5.4.3.1-0350	The CCS-PSS shall have the capability to manipulate the data contents of OBC memory areas in real-time via operator input.	CCS.5.4.3-0100	
CCS.5.4.3.1-0360	PSS shall have the capability to display the contents of any operator selected OBC memory area.	CCS.5.4.3-0100	
CCS.5.4.3.1-0370	The CCS-PSS shall have the capability to transmit DF-224, Co-processor NSSC-I, SI microprocessor, and 486 dump formats.	CCS.5.4.3-0100	
CCS.5.4.3.1-0380	The CCS-PSS will initialize the memory area data with the address or word number, i.e. NSSC-I location 200 will contain '200'.	CCS.5.4.3-0100	
CCS.5.4.3.1-0390	The CCS-PSS shall be able to display the status of internal program parameters and telemetry status values. Examples include telemetry format, data polarity, # of minor frames sent, and number of commands received.	CCS.5.4.3-0100	
<i>PSS To Project reference Database Interface</i>			
CCS.5.4.3.1-0400	The CCS-PSS shall be able to retrieve command verification information, as defined in DM01, from the Project Reference Database to support command	CCS.5.4.3-0100	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
	verification.		
CCS.5.4.3.1-0410	The CCS-PSS shall retrieve Project Reference Database scenario information that specifies stored responses for certain commands that will be triggered at the execution of those commands.	CCS.5.4.3-0100	
CCS.5.4.3.1-0420	The CCS-PSS shall retrieve Project Reference Database telemetry definition information to establish minor frame locations of all telemetry mnemonics.	CCS.5.4.3-0100	
CCS.5.4.3.1-0430	The CCS-PSS shall convert the raw PCM counts to Engineering Units using conversion algorithms retrieved from the Project Reference Database.	CCS.5.4.3-0100	
CCS.5.4.3.1-0440	The CCS-PSS shall provide the capability to display the telemetry location(s) for any telemetry mnemonic defined by the Project Reference Database.	CCS.5.4.3-0100	
CCS.5.4.3.1-0450	The CCS-PSS shall be able to set initial values for any telemetry mnemonic defined in the Project Reference Database.	CCS.5.4.3-0100	
CCS-PSS User Interface (TBD)			
CCS.5.4.3.1-0460	The CCS-PSS user interface shall consist of a Web-based or X-based GUI running under UNIX or Windows on a workstation or PC.	CCS.5.4.3-0100	
CCS.5.4.3.1-0470	The CCS-PSS user interface shall be compatible with the CCS user interface.	CCS.5.4.3-0100	
CCS.5.4.3.1-0480	The CCS-PSS shall have remote terminal login using a World Wide Web-Browser.	CCS.5.4.3-0100	
CCS.5.4.3.1-0490	The CCS-PSS shall use the Java Programming Language, and utilize CCS class libraries.	CCS.5.4.3-0100	
CCS.5.4.3.1-0500	The CCS-PSS shall have the capability to display snapshots generated test data.	CCS.5.4.3-0100	
CCS.5.4.3.1-0510	The CCS-PSS shall provide the capability for users to display values extracted from Project Reference Data.	CCS.5.4.3-0100	
CCS.5.4.3.1-0520	The CCS-PSS user interface shall permit users to define initial values and scripting information.	CCS.5.4.3-0100	
CCS.5.4.3.1-0530	The CCS-PSS user interface permit users to create test scenario files for test automation.	CCS.5.4.3-0100	
CCS.5.4.3.1-	The CCS-PSS user interface shall provide the user with the ability to save	CCS.5.4.3-0100	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
0540	and restore test scenarios and configurations.		
CCS.5.4.3.1-0550	The CCS-PSS shall provide the capability for higher data rates up to 5 Mbps to accommodate future instruments.	CCS.5.4.3-0100	
CCS.5.4.3.1-0560	The CCS-PSS shall provide the capability to incorporate raw minor frame data retrieved from the the FEP 30-day holding area and replay this data.	CCS.5.4.3-0100	
<i>Network Utilities (TBD)</i>			
CCS.5.4.3.1-0570	The CCS-PSS shall provide the capability to perform the following functions resident in the Johnson Spaceflight Center (JSC) Simulator (JSCSIM) utility:	CCS.5.4.3-0100	
CCS.5.4.3.1-0580	The CCS-PSS shall provide the capability to process real-time and playback orbiter telemetry at 64, 96, 128, and 192 kbps.	CCS.5.4.3-0100	
CCS.5.4.3.1-0590	The CCS-PSS shall provide the capability to generate 32 and 72 kbps uplink in blocked or serial mode.	CCS.5.4.3-0100	
CCS.5.4.3.1-0600	The CCS-PSS shall provide the capability to build single stage and two-stage command sequences.	CCS.5.4.3-0100	
CCS.5.4.3.1-0610	The CCS-PSS shall provide the capability for command echo and command logging.	CCS.5.4.3-0100	
CCS.5.4.3.1-0620	The CCS-PSS shall provide the capability to display site status messages.	CCS.5.4.3-0100	
CCS.5.4.3.1-0630	The CCS-PSS shall provide the capability to perform the following functions resident in the JSC Mission Control Center (MCC) Simulator (MCCSIM) utility:	CCS.5.4.3-0100	
CCS.5.4.3.1-0640	The CCS-PSS shall provide the capability to receive and process all orbiter Operational Downlink (OD) data.	CCS.5.4.3-0100	
CCS.5.4.3.1-0650	The CCS-PSS shall provide the capability to output one or two Payload Data Interleaver (PDI) streams and one Payload Parameter Frame (PPF) stream.	CCS.5.4.3-0100	
CCS.5.4.3.1-0660	The CCS-PSS shall provide the capability to receive and validate POCC command blocks and interleave valid payload commands into shuttle command stream.	CCS.5.4.3-0100	
CCS.5.4.3.1-	The CCS-PSS shall provide the capability to output Command Acceptance	CCS.5.4.3-0100	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
0670	Pattern (CAP) blocks for single stage and two stage commands.		
CCS.5.4.3.1-0680	The CCS-PSS shall provide the NCC message interface capability equivalent in the NCC Message Simulator (MESSIM):	CCS.5.4.3-0100	
CCS.5.4.3.1-0690	The CCS-PSS shall provide the capability to transmit User Performance Data (UPD) messages.	CCS.5.4.3-0100	
CCS.5.4.3.1-0700	The CCS-PSS shall provide the capability to validate and respond to Ground Control Messages (GCMR)s.	CCS.5.4.3-0100	
CCS.5.4.3.1-0710	The CCS-PSS shall provide the capability to validate and respond to NCC scheduling messages.	CCS.5.4.3-0100	
CCS.5.4.3.1-0720	The CCS-PSS shall provide the capability to validate and respond to communications test messages.	CCS.5.4.3-0100	
<i>HST Simulator Models (TBD)</i>			
CCS.5.4.3.1-0730	The CCS-PSS shall incorporate TBD HST Simulator models for the power subsystem.	CCS.5.4.3-0100	
CCS.5.4.3.1-0740	The CCS-PSS shall incorporate TBD HST Simulator models for the thermal subsystem.	CCS.5.4.3-0100	
CCS.5.4.3.1-0750	The CCS-PSS shall incorporate TBD HST Simulator models for the C&DH subsystem.	CCS.5.4.3-0100	
CCS.5.4.3.1-0760	The CCS-PSS shall incorporate TBD HST Simulator models for all spacecraft instruments.	CCS.5.4.3-0100	
<u>Deployment/Distribution Process (5.4.4)</u>			
CCS.5.4.4-0010	The Deployment/Distribution Process shall be able to assemble tailored system deployment packages consisting of COTS, GOTS and custom built components.	CCS.5.4-0050, CCS.5.4-0070, CCS.5.4-0080	
CCS.5.4.4-0020	The Deployment/Distribution Process shall be able to assemble update packages to deployed systems containing COTS, GOTS, and custom components that have changed since the last delivery.	CCS.5.4-0050, CCS.5.4-0070, CCS.5.4-0080	
CCS.5.4.4-0030	The Deployment/Distribution Process shall be able to assemble tailored system deployment packages and update packages for the following facilities: (1)CCS, (2) Vehicle Electrical Systems Test (VEST) facility, (3)	CCS.5.4-0050, CCS.5.4-0070, CCS.5.4-0080	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
	Fine Guidance Sensor Test Facility at Hughes Danbury Optical Systems (HDOS), (4) DF-224 Analysis and Software Development Facility (DASDF), (5) DF-224 Software Test and Integration Facility (DSTIF), (6) 486 Development Test Bed, (7) Extended Software Test and Integration Facility (ESTIF), (8) and Science Instrument Test System (SITS).		
CCS.5.4.4-0040	The Deployment/Distribution Process shall be able to assemble updated versions of Project Reference Data products for recipients within CCS and to external facilities.	CCS.5.4-0050, CCS.5.4-0070, CCS.5.4-0080	
Product Distribution (5.4.5)			
CCS.5.4.5-0010	Product Distribution shall transfer system deployment and update packages to a network accessible area or onto transportable media for delivery.	CCS.5.4-0090, CCS.5.4-0230	
CCS.5.4.5-0020	Product Distribution shall notify a deployment facility when a system delivery package has been delivered.	CCS.5.4-0090	
Configuration Management (5.4.6)			
CCS.5.4.6-0010	Configuration Management shall provide a repository for all file-oriented CCS development products including software, system data sets, and documentation.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0020	Configuration Management shall associate every CCS development product with one of the specific CCS life-cycle baselines.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0030	Configuration Management shall be able to identify, maintain, and track multiple versions of all CCS development products.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0040	Configuration Management shall identify and track all CCS development product versions created as a result of a particular change.	CCS.5.4-0060, CCS.5.4-0190	
fCCS.5.4.6-0050	Configuration Management shall support the decomposition of the system into a multi-level hierarchy of components and sub-components that extends to at least five levels.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0060	Configuration Management shall be able to identify all the CCS development products and versions associated with any component at any level of the component hierarchy.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0070	Configuration Management shall permit users to check development products out of the repository and transfer them to their own private work	CCS.5.4-0060, CCS.5.4-0190	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
	areas.		
CCS.5.4.6-0080	Configuration Management shall permit users to transfer development products from their own private work areas and check them into the repository.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0090	Configuration Management shall control and track transactions involving individual users checking out development products from repositories to their private user work areas and then checking them back in to the repository.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0010	Configuration Management shall permit developer to modify the software in the private user work area without affecting the repository, a reference library or any other user's work.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0110	Configuration Management shall be able to identify all changes and the associated CCS development product version differences between any two versions of any component at any level in the component hierarchy.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0120	Configuration Management shall be able to track multiple parallel development paths resulting when two or more versions of a component originate from a common previous version.	CCS.5.4-0060, CCS.5.4-0190	
FCCS.5.4.6-0130	Configuration Management shall track all CCS development product changes associated with each version of any component for which multiple parallel developments are being performed.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0140	Configuration Management shall support merging of multiple development paths into a single development path by identifying all conflicts between multiple component versions for which merging is being attempted and requiring resolution of all conflicts before merging is completed.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0150	Configuration Management shall detect possibly conflicting concurrently developed updates to a CCS development product caused by attempts to incorporate more than one update originating from the same version of that product.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0160	Configuration Management shall support merging of concurrently developed updates to a CCS development product by identifying all difference conflicts between the concurrently developed versions and requiring resolution of all	CCS.5.4-0060, CCS.5.4-0190	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
	conflicts before merging is completed.		
CCS.5.4.6-0170	Configuration Management shall support resolution of conflicts between two CCS development product versions by identifying and displaying the differences and providing manual editing support to resolve each conflict.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0180	Configuration Management shall be able to add a change and its associated development products to a component.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0190	Configuration Management shall be able to delete a change and its associated development products from a component.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0200	Configuration Management shall be able to migrate a change and its associated development products from one version of a component to another version.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0210	Configuration Management shall automatically detect conflicts in development products from an attempt to migrate a change from one version of a component to another.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0220	Configuration Management shall be able to create and maintain configuration reference libraries to permit groups of developers to access a common set of software products for testing purposes.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0230	Configuration Management shall provide the general capability for users to define attributes that describe components or development products and specify relationships between them.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0240	Configuration Management shall provide general audit and reporting capabilities related to components, products, changes, and transactions.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0nn0	Configuration Management shall find and display version differences.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0250	Configuration Management shall provide an easy to use GUI.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0260	Configuration Management shall be able to graphically display the sequences of component versions that represent the development paths.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-0270	Configuration Management shall control access and privileges of individual users.	CCS.5.4-0060, CCS.5.4-0190	
CCS.5.4.6-	Configuration Management shall have a client/server architecture and shall	CCS.5.4-0060,	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
0280	support the CCS heterogeneous computing environment consisting of multiple platforms and UNIX/IRIX, Open VMS and Windows 95, NT operating systems.	CCS.5.4-0190	
Change Management (5.4.7)			
CCS.5.4.7-0010	Change Management shall provide users with an automated, on-line forms-oriented method for inputting Change Requests (CRs).	CCS.5.4-0100, CCS.5.4-0110	
CCS.5.4.7-0020	Change Management shall ensure that users entering CRs supply all the required information.	CCS.5.4-0100, CCS.5.4-0110	
CCS.5.4.7-0030	Change Management shall accept four different type of CRs, specifically called Enhancements, Problem Reports, HST anomaly Reports, and Other.	CCS.5.4-0100, CCS.5.4-0110	
CCS.5.4.7-0040	Change Management shall uniquely number all CRs.	CCS.5.4-0100, CCS.5.4-0110	
CCS.5.4.7-0050	Change Management shall be able to associate auxiliary information such as white papers, analysis reports, and design documents with specific CRs.	CCS.5.4-0100, CCS.5.4-0110, CCS.5.4-0130	
CCS.5.4.7-0060	Change Management shall identify stored information related to a Change Request using the unique Change Request number.	CCS.5.4-0120, CCS.5.4-0130	
CCS.5.4.7-0070	Change Management shall capture and maintain the following information with each Change Request: the originator's name, the submission date, the product against which the Change Request is written, a summary of the proposed change, a detailed description of the proposed change, the severity level, the priority of the request, a class designation for the proposed change, the baseline the Change Request is written against, the name of a person to whom the Change Request is assigned, the status of the Change Request, impact analyses, affected baselines and components, affected internal and external interfaces, the approvers name, and the approval date.	CCS.5.4-0120, CCS.5.4-0130	
CCS.5.4.7-0080	Change Management shall be able to cross reference a CR with other CRs.	CCS.5.4-0160	
CCS.5.4.7-0090	Change Management shall automatically assign each CR to a person, "the CR Assignee", based on the product against which the CR was written.	CCS.5.4-0160	
CCS.5.4.7-	Change Management shall maintain information defining the Change	CCS.5.4-0160	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
0100	Management Process as a series of discreet states or status levels.		
CCS.5.4.7-0110	Change Management shall maintain information about the status and history of every CR.	CCS.5.4-0160	
CCS.5.4.7-0120	Change Management shall maintain information defining the approvals needed for each class of CR at each step of the Change Management Process.	CCS.5.4-0160	
CCS.5.4.7-0130	Change Management shall maintain information defining the personnel to be notified when a CR changes status.	CCS.5.4-0160	
CCS.5.4.7-0140	Change Management shall require appropriate approvals before allowing the status of a CR to be advanced to the next state.	CCS.5.4-0160	
CCS.5.4.7-0150	Change Management shall notify appropriate personnel by e-mail whenever a CR's status changes.	CCS.5.4-0160	
CCS.5.4.7-0160	Change Management shall record the date of each significant event in the life of a CR.	CCS.5.4-0160	
CCS.5.4.7-0170	Change Management shall require users who originate CRs to specify a baselined CCS product of any development phase or "CCS" as the target of the change.	CCS.5.4-0160	
CCS.5.4.7-0180	Change Management shall provide to authorized users the capability to access, display, update, and approve information contained in or attached to a CR.	CCS.5.4-0120	
CCS.5.4.7-0190	Change Management shall restrict access to functions in accordance with system defined privileges and roles, assignment of specific personnel to those roles, and the identification of the user.	CCS.5.4-0100, CCS.5.4-0110, CCS.5.4-0120	
Procurement Management			
CCS.5.4.7-0200	Procurement Management shall be able to capture a Purchase Request.	CCS.5.4-0170	
CCS.5.4.7-0210	Procurement Management shall capture the following information for each Purchase Request: description of item(s) being requested, the number of items requested, the cost of each item, the originator's name, the PCN number, the Purchase Order number, the justification for purchasing the item, the date submitted, the vendor's name, the proposed delivery date, and the status of the PR.	CCS.5.4-0170	

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CCS.5.4.7-0220	Procurement Management shall permit access, review, modification, update, and approval of Purchase Requests.	CCS.5.4-0170	
Inventory Management			
CCS.5.4.7-0230	Inventory Management shall provide a repository to store and maintain inventory information that uniquely identifies specific items of equipment that constitute the CCS systems and environment.	CCS.5.4-0180	
CCS.5.4.7-0240	Inventory Management shall permit users to enter, retrieve, modify, or delete individual items of inventory information.	CCS.5.4-0180	
CCS.5.4.7-0250	Inventory Management shall provide a reporting capability that allows users to generate inventory reports.	CCS.5.4-0180	
Document Management and Format Tools (5.4.8)			
CCS.5.4.8-0010	Document Management and Format Tools shall provide the capability to perform word processing, develop presentations, and create and manipulate spreadsheets and data bases.	CCS.5.4-0190	
CCS.5.4.8-0020	Document Management and Format Tools shall provide the means to convert document native formats into Portable Document Format (PDF) and hypertext markup language (html).	CCS.5.4-0190	
CCS.5.4.8-0030	Document Management and Format Tools shall provide tools that assist with the process of constructing attractive, well-organized World Wide Web pages.	CCS.5.4-0200	
Upper Case Tool (5.4.9)			
CCS.5.4.9-0010	The Upper Case Tool shall provide multi-user support.	CCS.5.4-0020	
CCS.5.4.9-0020	The Upper Case Tool shall be able to remove all users from the system from a central control point.	CCS.5.4-0020	
CCS.5.4.9-0030	The Upper Case Tool shall be able to create and maintain separate repository partitions for different versions of the system.	CCS.5.4-0020	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
CCS.5.4.9-0040	The Upper Case Tool shall provide a GUI for entering and editing system engineering and design information.	CCS.5.4-0020	
CCS.5.4.9-0050	The Upper Case Tool shall provide a means to define new repository entities.	CCS.5.4-0020	
CCS.5.4.9-0060	The Upper Case Tool shall provide a means to define relationships between new repository entities.	CCS.5.4-0020	
CCS.5.4.9-0070	The Upper Case Tool shall provide a means to define relationships between new and standard repository entities.	CCS.5.4-0020	
CCS.5.4.9-0080	The Upper Case Tool shall provide a means to define new relationships between standard repository entities.	CCS.5.4-0020	
CCS.5.4.9-0090	The Upper Case Tool shall provide a general capability for reporting repository contents.	CCS.5.4-0020	
CCS.5.4.9-0100	The Upper Case Tool shall provide a programmable reporting capability that can access any entity.	CCS.5.4-0020	
CCS.5.4.9-0110	The Upper Case Tool shall provide programmable reporting capability to access any relationship.	CCS.5.4-0020	
CCS.5.4.9-0120	The Upper Case Tool shall provide the capability to access the repository information related to system diagrams.	CCS.5.4-0020	
<i>Gane and Sarson Methodology</i>			
CCS.5.4.9-0130	The Upper Case Tool shall provide support for the Gane and Sarson Structured Design Methodology(GSM).	CCS.5.4-0020	
CCS.5.4.9-0140	The Upper Case Tool shall permit users to create, store, modify and delete Data Flow Diagrams.	CCS.5.4-0020	
CCS.5.4.9-0150	The Upper Case Tool shall permit users to create, store, modify and delete descriptions for Processes.	CCS.5.4-0020	
CCS.5.4.9-0160	The Upper Case Tool shall permit users to create, store, modify and delete descriptions for Data Flows.	CCS.5.4-0020	
CCS.5.4.9-0170	The Upper Case Tool shall permit users to create, store, modify and delete descriptions for Data Stores.	CCS.5.4-0020	
CCS.5.4.9-0180	The Upper Case Tool shall permit users to create, store, modify and delete descriptions for External interfaces.	CCS.5.4-0020	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
CCS.5.4.9-0190	The Upper Case Tool shall permit users to create, store, modify and delete definitions of data structures for data flows.	CCS.5.4-0020	
CCS.5.4.9-0200	The Upper Case Tool shall permit users to create, store, modify and delete definitions of data structures for data stores.	CCS.5.4-0020	
CCS.5.4.9-0210	The Upper Case Tool shall automatically verify balancing between parent and child diagrams.	CCS.5.4-0020	
<i>OMT Methodology Support</i>			
CCS.5.4.9-0220	The Upper Case Tool shall provide support for the Object Modeling Technique (OMT) methodology.	CCS.5.4-0020	
CCS.5.4.9-0230	The Upper Case Tool shall permit users to create, store, modify and delete Object Class Diagrams.	CCS.5.4-0020	
CCS.5.4.9-0240	The Upper Case Tool shall permit users to create, store, modify and delete Event Trace Diagrams.	CCS.5.4-0020	
CCS.5.4.9-0250	The Upper Case Tool shall permit users to create, store, modify and delete Data Flow Diagrams.	CCS.5.4-0020	
CCS.5.4.9-0260	The Upper Case Tool shall permit users to create, store, modify and delete State Diagrams.	CCS.5.4-0020	
CCS.5.4.9-0270	The Upper Case Tool shall permit users to create, store, modify and delete data attributes as part of an Object Class model.	CCS.5.4-0020	
CCS.5.4.9-0280	The Upper Case Tool shall permit users to create, store, modify and delete member functions as part of an Object Class model.	CCS.5.4-0020	
CCS.5.4.9-0290	The Upper Case Tool shall support implementation of C++ source code based on an Object Class model.	CCS.5.4-0020	
<u>System Design/Validation Tool (5.4.10)</u>			
CCS.5.4.10-0010	The System Design/Validation Tool shall permit users to define, store, and maintain enterprise process information such as Process Maps, Elementary Business Processes, and Derived Logical Processes.	CCS.5.4-0020	
CCS.5.4.10-0020	The System Design/Validation Tool shall permit users to define, store, and maintain information pertaining to requirements, the tracing between requirements, and the mapping of requirements to components of CCS.	CCS.5.4-0020	
CCS.5.4.10-	The System Design/Validation Tool shall permit users to define, store,	CCS.5.4-0020	

REQ #	REQUIREMENT DESCRIPTION	PARENT REQ #	LEGACY REQ #
0030	maintain, and evaluate performance models of CCS.		
CCS.5.4.10-0040	The System Design/Validation Tool shall permit users to define, store and maintain stimulus-response threads representing the functional operation of CCS.	CCS.5.4-0020	